

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hilda E. Smith

Serial No.: 09/767,041

Filed: January 22, 2001

For: STREPTOCOCCUS SUIIS VACCINES
AND DIAGNOSTIC TESTS

Examiner: To Be Assigned

Group Art Unit: 1646

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LETTER TO THE CHIEF DRAFTSMAN

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant submits herewith revised figures which correct errors in the drawings. Specifically, FIGs. 1, 3, 4, 5, 6, 7, 10 and 11 have been revised to incorporate the appropriate margin requirements. FIG. 2 has been revised to add -I-, -II-, and -III-- to the left of the figure and a better quality copy has been provided. A better copy of FIG. 8 is provided and FIG. 8 has been revised to incorporate the appropriate margin requirements. A better copy of FIG. 12 has been provided. FIGs. 9A and 9B have not been revised as they appear to comply with the margin requirements. Attached is a copy of the drawings with the proposed changes marked in red.

No new matter has been added. Approval of the proposed revisions is respectfully requested.

Respectfully submitted,

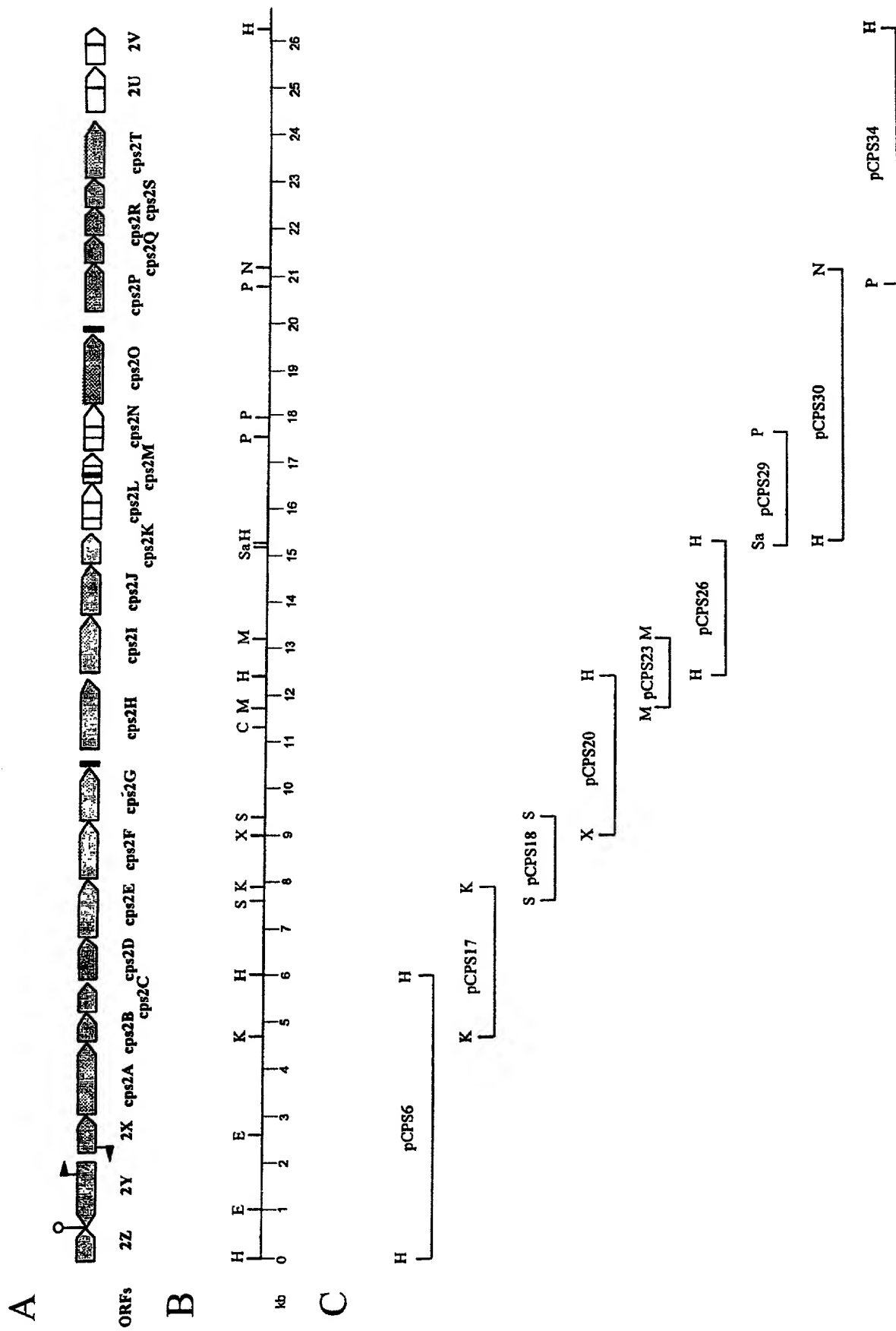


Krista Weber Powell
Registration No. 47,867
Attorney for Applicants
TRASKBRITT, PC
P. O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: (801) 532-1922

Date: September 19, 2001

Enclosures: Drawings with changes marked in red
Drawings reflecting proposed changes

N:\2183\4726\Ltr Draftsman.wpd 9/19/01



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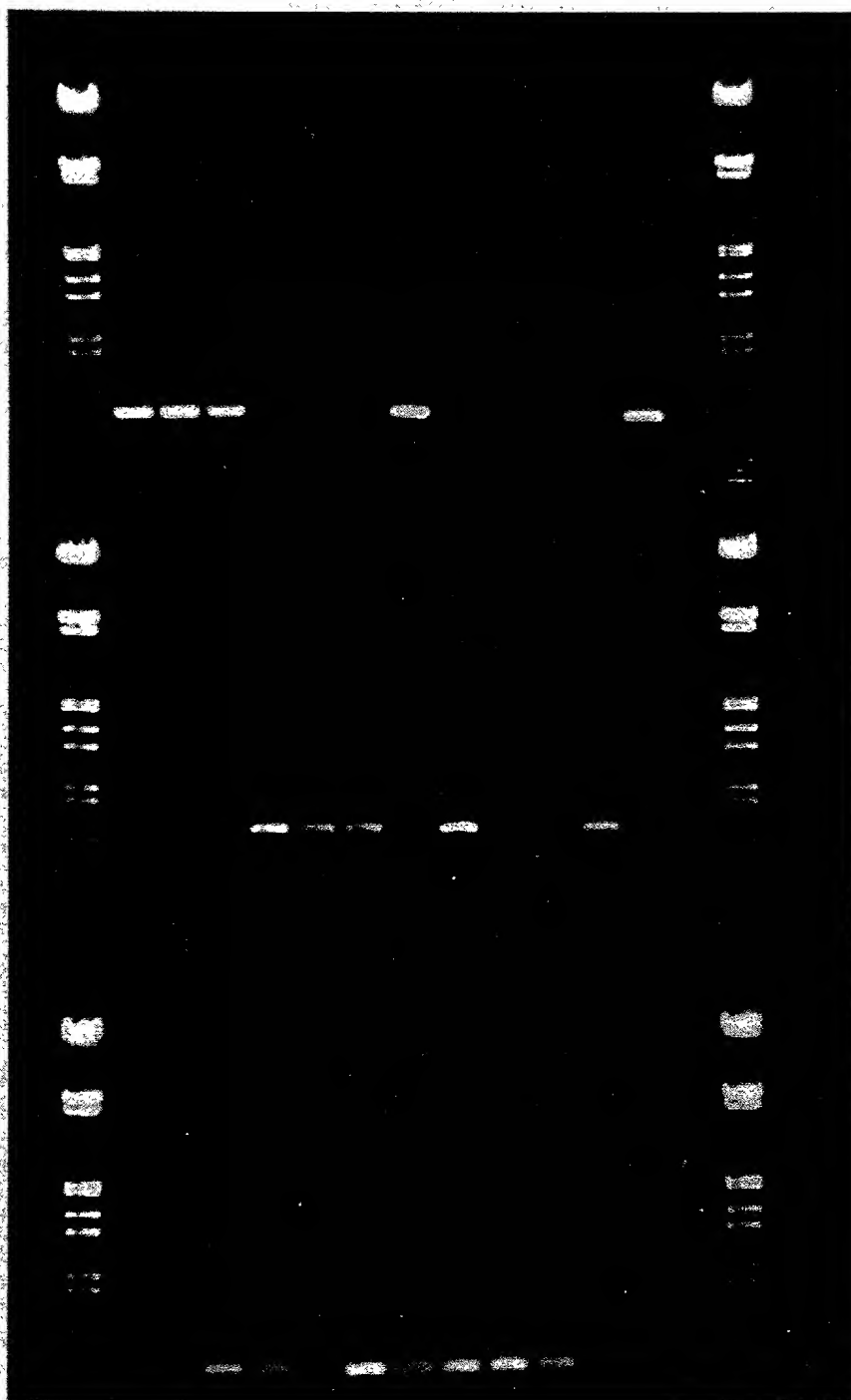


Fig. 2

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 CTAGGGATAT GTATATCGAA GAGCATCCGA ATGTCAATAT CCATTTGATA
 GATAGTTTGT CAGCCAGTGG GGAATGGAT TTACTTGATC ACCAAATCAA TCGCTTAATT
 AGTGCAGGAT TAGATTTTCC ACAAGTAGTA GAAGCGATAA CTCACTATCG
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 ACTGAGCAAA TTGGTAGGCA CTGTCGTTGG TCTTCTCAAT ATCCGTATGG
 TTGGTGAGGC AAGTGCTGAA GGAAATTAG AGTTGCTTCA AAAGGCGCGT GGTCTAAGA
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 GTAAAGCAA GTTTTCCAAC GGCTGTTATT GACGAAGTTG CAACATCAGG
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 ATTCACAGAG TAATAATTTT GGGCTGTAAT TTCCGCTATA GAATAATCCC
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 CTATCCTCTA AGATATAATA ACCGCTTTTT TCGACAGCGT AGATCTTATT TTGGTATTTT
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 CTGACCGTTG GTATCGAATC AGGACAGGTC AAGCAAAAC CTATCCAGCC
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 CTCCCAGAT TCAGAAAAGA TTAGTTAAAA TTCTTTTCAT GGAAGAAAAA
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 TGGTTGGCTA AGAACAAATAT TCAGGAATTA TCGGACATTC AAGATTTTAA
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 AAGGTTGTTT ATGAAAAAGA GAAGCGGACG AAGTAAGTCG TCCAAGTTCA
 AATTGGTAAA TTTTGGCCTT TTGGGACTTT ATTCCATTAC TCTATGTTTG TTCTTAGTGA
 CCATGTATCG CTATAACATC CTAGATTTCC GGTATTTTAA CTATATTGTG
 ACGCTTTTGC TAGTAGGAGT GGCAGTATTG GCTGGATTAT TGATGTGGCG TAAGAAAGCG
 CGCATATTTA CAGCGCTCTT ACTTGTTTTT TCACTGGTCA TCACGTCTGT

Fig. 3

DNA Serotype 2

TGGGATCTAT GGAATGCAAG AAGTTGTAAA ATTTTCAACA CGACTAAATT CAAATTCGAC
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 CCGCTTTTATT GGATGACATA TCCAAAATGG AATCTACTCA ACTAGCAACT
 AGCCCCGGGA CTTCTTACCT GACAGCATAT CAATCTATGT TGAATGGCGA GAGTCAAGCG
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 GTTGAGGTCA CCAAGGTAAG CGATGTGACG ACCTTGAAG AAGCAGTCCC AGCGGAAGAA
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 TTTAGTACAT TGTGTTGCTA GCGATATGCA TAATTTATAT AGTAGACCTC CGTTTATGAG
 GGAGGCGTAT CAGCTTGTA AAAAAGAGTA TGGTGAGGAT AGAGCGAAGG

Fig. 3 cont.

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 GGAGTACGCT TAAATATATT TCCATGCTAT TTTGTGCTAT TTTTATATAC
 TATTTCTTTG TTTTTTTAA AACACATAGT GATTCCTACG CTCATCGCGT TAATGGTCTT
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 TTTAGGTTGG AATGGAACGC TTGAAATGCC CTTACTGAGT ATTATGTTAA

Fig. 3. cont.

AAAATGGTTT TATCGGTCTG GTAGGGTATG GGATTGTTTT ATATAAACTT TATCGTAATG
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 ATGCCAATAT GTTTTGTGTT ATTAATTTCT ATATCTACTA TGAATCAAC
 TATTAACAAA CAACTGCAAA CATAAATTGG CAGGAATAGA GTTTTGAGTT GCTATTAATT
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 ATGATGATTT TTATGATAGC AAAGCAAGTT ACGGCATAAA AGGAATTAGA GGATGGAAAA
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 ATTTTCCCAA TCATTATATG AGCGGTATCT TTAATAGCCC TTGTTGCAAA
 CTTTATAAGA ATATATATAT AAACCAAGGT TTTGACACTG AACAGTGGTT AGGAGAGGAC
 TTATTATTTA ATCTAAATTA TTTAAAGAAT ATAAAAAAG TCCGCTATGT
 TAACAGAAAT CTTTATTTTG CCAGAAGAAG TTTACAAAGT ACTACAAATA CGTTTAAATA
 TGATGTTTTT ATTCAATTAG AAAATTTAGA AGAAAAAAT TTTGATTTGT
 TTGTTAAAA ATTTGGTGGA CAATATGAAT TTTCTGTTTT TAAAGAGACG CTACAGTGCG
 ATATTATTTA TTATAGCTTA TTAATGTTCA AAAATGGAGA TGAATCGCTT
 CCAAAGAAAT TGCAATATAT TAAGTATTTA TACAATAGGC ATCTCTTAGA TACTCTAAGT
 ATTAACGAA CGTCCTCTGT TTTTAAAGA ATATGTAAT TAATTGTTGC
 TAATAATTTG TTTAAATTT TTTTAAATAC TTTAATTAGG GAAGAAAAA ATAATGATTA
 ACATTTCTAT CATCGTCCCA ATTTACAATG TTGAACAATA TCTATCCAAG
 TGTATAAATA GCATTGTAA TCAGACCTAC AAACATATAG AGATTCTTCT GGTGAATGAC
 GGTAAGTACG ATAATTCGGA AGAAATTTGT TTAGCATATG CGAAGAAAGA
 TAGTCGCATT CGTTATTTTA AAAAAGAGAA CGGCGGGCTA TCAGATGCCC GTAATTATGG
 CATAAGTCGC GCCAAGGGTG ACTACTTAGC TTTTATAGAC TCAGATGATT
 TTATTCATTC GGAGTTCATC CAACGTTTAC ACGAAGCAAT TGAGAGAGAG AATGCCCTTG
 TGGCAGTTGC TGTTTATGAT AGGGTAGATG CTTCCGGGCA TTTCTTAAAC
 GCAGAGCCGC TTCTACAAA TCAGGCTGTT CTGAGCGGCA GGAATGTTTG TAAAAGCTG
 CTAGAGGCGG ATGGTCATCG CTTTGTGGTG GCCTGGAATA AACTCTATAA
 AAAAGAACTA TTTGAAGATT TTCGATTGA AAAGGTAAG ATTCTAGAG ATGAATACTT
 CACTTATCGC TTGCTCTATG AGTTAGAAAA AGTTGCAATA GTTAAGGAGT
 GCTTGACTA TTATGTTGAC CGAGAAAATA GTATCATAAC TTCTAGTAGT ACTGACCATC
 GCTTCCATTG CCTACTGGAA TTTCAAATG AACTGAATGGA CTTCTATGAA
 AGTAGAGGAG ATAAAGAGCT CTTACTAGAG TGTTATCGTT CATTTTTAGC CTTTGCTGTT
 TTGTTTTTAG GCAAATATAA TCATTGGTTG AGCAAACAGC AAAAGAAGCT
 TCTCCAAACG CTATTTAGAA TTGTATATAA ACAATTGAAG CAAAATAAGC GACTTGCTTT
 ACTAATGAAT GCTTATTATT TGGTAGGGTG TCTTCATCTT AATTTTAGTG
 TCTTCTGAA AACGGGAAA GATAAAATTC AAGAAAGATT GAGAAGAAGT GAAAGTAGTA
 CTCGGTAAGA ATGTTGTAAT AAATGGTTGA AAGAAAAGGG GATTAAAATG
 AATCCAACAA ATAGTAGAAT AGCACTCTTT GATACGATTA AATGTATCAT GGTACTTTGT
 GTTATTTTTA CACATCTGGA TTGGTCTGTT GAGCAGCGTC AATGGTTTTAT
 CTTTCCGTAT TTCGTTGACA TGGCTGTTCC AATTTTTCTG TTGCTTTCTG CCTATTTTCG
 AACGAATAAG TGAATACAA AACAGAGAC GCTAAAGCTC AAGTTTACGCA
 GTGGTATAAA AGAAAGTATA AACATGCTTT GTCTCTATGC TATCGTGATG GCTGTAAATG
 TTTTATTGAG CTATTCGAGA ACCATCTGAT AGGAGTAAAG CCTTTTTTCAG
 GTTCTTCATC GCTCCGTTCA TTTGTCCTGT GGCTACTTTC TGGAGAATCG GGTCCAGGGA
 GTTGGGAGTT ACTATGTTCC GTTGTGATT CAGGTAGTTT TTTTATTACC
 AATTTTGTAT GTTCTTTTCG AGAAAAATAA ATGGTTGGGC TTGCTTACTT GTTTTTTAGT
 AAACCTTTCA GTGGATGCCA TATTTGCTAA CATGGCTGAA CACGGCATAT
 ATATATAGAC TAATATCACT TCGTTATCTT TTTGTTCTAG GGCTTGGTTT TTTCTTTCAA
 AGCAGGATGT GCGTTCCAAG GTAGATACTT TCATTGCGAC CCTATTTGGG
 ATTATTGGAG CAATTCTGAT TTTTGTAAT CATTCTATAG AGCCCTTCTC CTGGTTTTAT
 GGTGGAAGT CTACTTCCTT TCTATGCGTC CCATTTGCGT ATGCTATGCT
 ATTTTTTATG ATAAAGTATG GACAGAAGAT TCCAGCAATA CTGTTGTCAA AATTGGGAGT
 TGCTTCTTAT CATATCTACT TGACCCAGAT GCTGTATTTT TCAGTAGTCG

Fig. 3 cont.

CACCATTTTT AGCAGTGCAA TTTAAGGTAT CTTGTTGAA TTTGTGGAAC GGCTTGTTTA
 CCTTTCTAAT TTGCTGTGT GGTGGCTATA TTTTCTACAA AGTGGATCTG
 TTTATGAGAG TACGTGGAAA ACGATAATGA CTCATTTTCAG ATTAGCAGAT GCCATTTTCGT
 TTATTAGCAG ATTTCGCATGT TAATATTCCG ACAAAGAAAT TCAAATAGGT
 TGACGAGAGA GGAGTGGTAT CTGTTTCTAA ACCCCAGTAT CCCCCTTTAT TTTCAAAGCT
 ATATTTATTA ACTGAACAAG GAGAATTTTT AAGAGAACTG TTTGTTTAAT
 CCCAGCACGA TCTGGTTCGA AAGGCTTACC GAATAAAAC ATGCTATTTT TGGACGGGAA
 ACCCATGATT TTTCACACGA TTGATGTGGC AATTGAATCA GGTGTGTTTG
 AGAAAGAAGA CATCTATGTC AGTACGGATT CAGAAATGTA TAAGGGGGGC ACCTCTATAA
 ATTCCCAAAA TTGCGAATTT GGAGTTACGA AAGCCTTGTT AAATCAACAT
 CTTAAATTTT AGAAAATTAG TTTTATAGAG TCCCAAGGG GATTTGCGAG ACAAGAGGCA
 TCAATGTATT GTTAAGACCC AAAGAACTAT CTACTTATCA TACTCCATCG
 AATGAAGTCA GTACGCACCT TTTTACGAAT CTGGATTTTA TGAAGATTGT ATATTTGTTC
 TTCTGTCAAGT CACCTCACCG TTACGGACTG GCGAACAGAT AAAAGAAGCC
 ATGAATATGT ACTTACAGGG GGACTCAGAA AATGTTTTGC ATTTCAATGA TGAAGGGCAA
 GAAAGAGTGA ATCAGTACAT TATCGAAGCT GTACAGGGGT TATAAAAAGG
 GGTACTTAT CTTTAAAGTC TGTATGTAGA AGGAGAAAAA TTGAGACGAA TTTATATTTG
 CCATACGATG TATCAGATCC TGATTTCTT GTTAAAGATG GACGTTGAGA
 GAGATAGTTT GATGTCCGTT GATATCATCG GGCATTTTCC AGATGTCAGG GAGCAACTGC
 AGCAGCATGT TCATCTAATC GAGGGAGACG GAGCGTTCAT TTGATCTATA
 TTCTTTGATA GCTAGATCAA AAACAAAAGA ACGCCTTCC TTGTTACAGA GCTATGACGA
 GGTGATCATT TTTCAAGATC ACCGTCAAGT CGGTCATTTT TTAATAAAC
 ATCGGATTCC CTATTCTCTT TTGGAGGATG GTTATAATTT TTTCAAGGAT AAAAGAGTGT
 GCGATTTTGA GTCAATTCAA TCATCTGTCT GGAAAAGACT CTTTTATCAA
 TGGTATTTTA AACCAACATA TTTGATTGGT TCAAGTCTCT ATTGTCAATC CATTGAGGTC
 AATGATCTGT CGCTCGTACA ATTTGACTAG GCTTATAAAC CCTTGTAGA
 AGTTCCGAGA AAGCAATTAT TTGATCAAGC ATCGCCAGAG AAGGTGCAAG CGCTGCTGCA
 GATATTTTGA GCAAGGGCGA TAGTAGCGGA TGAAGAGTCT TCTCAAAAAC
 GATTGCTATT ATTGACCCAG CCCTTGCTT GGGATTATCA TGTGACCGAA GAGAGTTGTT
 GGAGATTAT GTAGCAGGTC TTGCCCTTA TCGGGAAGAC TATACAATCT
 ACATAAAACC GCACCCACGA GATGGGGTTG ATTATTCATT TCTGGGTAAG GCTGTGGTGC
 TTCTGCCTCA AGGTATTCCG TTTGAGTTGT TCGAAATGGC AGGTAATATC
 CGTTTTGATA TCGGTATGAC CTATAGTTCG TCTGCTTTAG ATTTTTTAAA TTGTTTTGAA
 GAGAAAGTGT ATTTAAAGGA CACTTTTCCT CTTCTTTCAA AAAATGATAT
 TTTGCGTGAG GGGATAGAAT AGGAGGATTC ATGTCTAAAA AATCAATAGT TGTCTCAGGT
 CTCGCTATA CGATTGGAAC CATCCTCGTT CAGGGATTAG CCTTCATTAC
 CCTCCCCATC TATACTCGTG TCATTCTCA GGAAGTATAT GGGCAGTTTA GCTTGTATAA
 TTCTGCGGTG GGGCTAGTTG GTCTCTTTAT CGGTCTACAG TTAGGTGGGG
 CTTTTTGGCCC GGGATGGGTA CACTTCGCG AGAAATTTGA TGATTTTCGTA TCCACCTTGA
 TGGTCTCTTC TATCGCTTTC TTTTACCAA TTTTGGGCT ATCTTTTCTC
 CTCAGTCAGC CCCTATCGCT CCTATTGGT TTGCCTGATT GGGTCGTTCC GCTTTACTTT
 TTGCAAAGTT TTATGAGTGT TGTGCAAGGA TTTTTTACGA CCTATTTAGT
 GCAGCGGCAG CAGTCCATGT GGACTTTACT CCTATCGGTA CTGAGCGCTG TTATCAACAC
 TGCTTTATCT TTATTTCTCA TCTTTTCGAT GGAGAATGAT TTCATCGCTC
 GTGTAATGGC AAACTCGGCA ACGACTGGTG TTTTGTGCTT TGTGTCCTTG TTGTTTTTCT
 ATAAGAAGAT TGGGCTTCAT TTTGAAAGG ACTATCTTCG GTATGGTTTA
 AGTATATCGA TTCCTCTTAT TTTTCATGGA TTAGGTCATA ATGTACTCAA TCAATTTGAC
 AGAATCATGC TCGGCAAGAT GCTAACACTG TCAGATGTAG CCCTATACAG
 TTTCCGCTAC ACACTTGCCT CTATCTTACA AATTGTGTTT TCGAGCTTGA ATACGGTATG
 GTGTCGGTGG TATTTTGAGA AAAAGAGAGG TGCAGATAAA GATTTGCTCA
 GTTATGTCCG TTACTATCTG GCGATTGGCC TGTTTGTGAC TTTTGGATTT CTAACAATTT
 ACCCTGAATT AGCGATGTTG TTAGGTGGAT CTGAGTATCG TTTCAGTATG
 GGATTTATTC CCATGATTAT TGTGCGGGTG TTCTTTGTAT TTCTTTATAG TTTCCAGCC
 AATATCCAGT TTTATAGTGG AAATACAAAG TTTTGGCCAA TTGGTACTTT
 TATAGCAGGT GTACTAAATA TTTCCGTCCA CTTTGTGTTT ATACCGACAA AGAATTTATG
 GTGCTGCTTT GCAACGACTG CTTCTATCT GTTGTGCTA GTCTTGCTAT
 ATTTTGTGTC TAAGAAAAAG TATGCTTACG ATGAAGTTGC GATTTCAACA TTTGTTAAGG
 TAATTGCTCT TGTTGTCGTC TATACAGGCT TGATGACAGT ATTTGTCGGT
 TCAATCTGGA TTCGTTGGTC ACTAGGAATA GCGGTTCTAG TCGTTTATGC CTACATTTTT
 AGAAAGGAAT TAACAGTTGC CCTCAATACA TTCAGGGAAA AACGGTCTAA

Fig. 3 cont.

ATAAGGGCAC CTCTATAAAC TCCCAAAATT GCGAATTTGG AGTTACGAAA GCCTTGTTAA
 ATCAAACATT TTAAATTTTA GAAAATTAGT TTTTAGAGGT CCCCATATAA
 AAACGTCCCA AATGAGAGGT GCTCATAAGA ATTGACCATC ACTGCCATCT ACCCAAAGTT
 CAAGTATTCT CTACCATGAA AATTGTGCTA TAATCAAGTA TAAAGAAGGG
 AATGTTTCTT AAAGGACGTA TCGCCTCTG CTTATGCCAG AAGTCATGAG GTAAATCTCC
 CTAAAAATTG GGTAGAAAAG CAGATTAAAC TTCCACCAAT CTATTGAAGA
 TCGTGTTGAA GAGCAGGCTT TAGAAGCAAC AAGCCCTGAG ACTATTCGAA AGAAATCTAG
 GGCTATTTTT TCTAATCGGC TATCAGAAGT GAAGTAGCGA TCTTTATTAG
 TGTTCITTTA CTACTTAAGG AAAACCAAGC TGCTCCCTCA AGACTTTATG GGAGCGATT
 ACAGTGATTT TTAGAAAGGA AATAAAATGG TTTATATTAT TGCAGAAATT
 GGTTGTAATC ACAACGGTGA TGTTCATCTA GCACGGAAAA TGGTAGAAGT TGCCGTTGAT
 TGTGGTGTGG ATGCCGTTAA ATTTTCAGACA TTTAAGGCAG ATTTGTTGAT
 TTCAAATAC GCACCAAAGG CCGAATACCA AAAAATTACA ACAGGAGAGT CAGATTCTGA
 GCTCGAAATG ACTCGTCGTT TGGAATTGAG CTTTGAAGAG TATCTTGATT
 TGCCTGATTA CTGTCTTGAA AAGGGAGTTG ATGTGTTTTT GACACCTTTT GATGAGGAAT
 CATTGGACTT CTGATTAGC ACAGATATGC CCGTTTATAA GATTCCATCT
 GGTGAGATTA CCAATCTTCC CTATTGGAA AAAATTGGTC GTCAAGCTAA GAAAGTTATT
 CTTTCAACTG GTATGGCTGT TATGGATGAA ATTCATCAAG CGGTGAAGAT
 TTTGCAGGAA AATGGAACGA CCGATATTTT GATTTTGCAT TGTACAACCG AGTATCCAAC
 CCCTTACCCT GCTTTGAATT TGAATGTCTT GCATACCTTG AAAAAAGAA
 TTCCAAACTT AACAATTGGC TATTCAGACC ATAGTGTGGG TTCAGAAGTA CCCATCGCTG
 CTGCAGCAAT GGGAGCTGAA TTGATTGAAA AGCACTTTAC TCTGGACAAT
 GAAATGGAAG GACCAGATCA TAAAGCGAGT GCTACTCCTG ATATCTTAGC AGCCTTGGA
 AAAGGAGTGA GGATAGTGA ACAATCTCTT GGTAAATTG AAAAAAGAGC
 AGAAGAAGTT GAAGTACGAA ATAAAATTGT AGCTAGAAAA TCTATTGTTG CCAAAAAAGC
 AATTGCTAAA GGCGAAGTCT TTACAGAAGA AACATCACT GTCAAAGAC
 CAGGAAATGG AATTTCCGCA ATGGAATGGT ACAAAGTCTT GGGGCAGGTG AGTGAGCAGG
 ATTTTGAGGA AGACCAAAAT ATTTGCCATA GTGCTTTTGA AAATCAAATG
 TAAGCGGAGT AAGGATGAAA AAAATTTGTT TTGTGACAGG CTCTCGTGCC GAATATGGGA
 TTATGCGTCG CTTATTGAGC TATCTACAGG ATGATCCAGA AATGGAGCTG
 GATCTTGTAG TGACAGCCAT GCATCTAGAA GAAAAATATG GGATGACGGT CAAAGACATC
 GAAGCGGACA AGCGTAGGAT TGTCAGCGG ATTCCATTGC ATTTGACGGA
 TACGTCTAAG CAGACAATCG TCAAATCTTT AGCGACCTTG ACAGAGCAAC TCACGGTTCT
 TTTTGAAGAA GTCCAGTATG ACTTGGTGTG GATTCTGGGG GATCGCTATG
 AGATGCTACC AGTTGCCAAT GCTGCGTTGC TTTATAATAT TCCTATTGTC CATATTCATG
 GTGGTGAAAA AACCATGGGA AATTTTGATG AGTCGATTG CCATGCCATT
 ACCAAGATGA GTCACCTTCA TCTGACATCA ACGGATGAAT TTAGAAATCG TGTCATTCAA
 CTAGGAGAAA ATCCAACCAT GACTGAACA TCGGAGCTAT GGGTGTGAA
 AATGTTTTAA AACAAGACTT TTTGACAAGA GAAGAGTTGG CGATGGAAT TGGAAATTGAT
 TTTGCCGAGG ATTACTATGT TGTACTCTTT CACCTGTGTA CCTTGGAGGA
 TAACACAGCC GAAGAACAAA CGCAGGCCTT ATTAGATGCT CTAAAAGAAG ATGGTAGCCA
 GTGTTTGATA ATTGGATCCA ATTCGGATAC ACATGCCGAT AAGATAATGG
 AATTGATGCA TGAATTTGTA AAACAAGACT CTGATTCTTA CATCTTTACT TCGCTTCCAA
 CTCGTTATTA CCATTCCTTG GTCAGCATT CACAAGGTTT AATAGGGAAT
 TCTTCGTCAG GTTTGATTGA AGTGCCCTCA TTACAGGTTT CGACCTTAAA TATTGGAAAT
 CGCCAATTTG GACGTTTGTC AGGACCGAGT GTGGTACATG TTGGAACCTT
 TAAGGAAGCG ATTGTTGGTG GTTTGGGGCA ATTACGTGAT GTGATAGATT TTACCAATCC
 ATTTGAACAA CCGATTCTG CTTTACAAGG TTATCGAGCT ATCAAGGAAT
 TTTTATCTGT ACAGGCCTCA ACCATGAAAG AGTTTTATGA TAGATAGGGG AGAAAGTTTG
 ATGAAAAAAG TAGCCTTTCT AGGAGCGGGT ACCTTTTCAG ATGGTGTCTT
 TCCTTGGTTG GATAGAACTC GATATGAACT CATTGGATAT TTTGAAGATA AACCGATCAG
 TGAATATCGT GGCTATCCTG TATTTGGTCC CTTGCAAGAT GTCCTAACCT
 ATTTGGATGA TGGAAAAGTA GATGCTGTCT TCGTCACTAT AGGTGACAAT GTCAAGCGCA
 AGGAAATCTT TGACTTGCTT GCCAAAGATC ATTATGATGC TTTGTTCAAC
 ATCATTAGCG AGCAAGCCAA TATTTTTTCC CCAGATAGTA TCAAGGGACG AGGGGTTTTT
 ATAGGTTTTT CAAGTTTTGT AGGAGCCGAT TCCTATGTCT ATGACAATTG
 TATCATCAAT ACGGGTGCCA TTGTGGAACA TCATACCACG GTGGAGGCCC ATTGTAACAT
 TACTCCAGGA GTGACCATAA ATGGCTTGTG CCGTATCGGA GAAAGCACTT
 ATATTGGAAG TGGTTCAACA GTGATTCAAT GTATCGAGAT TGCACCTTAT ACAACATTGG
 GGGCAGGGAC AGTTGTTTTG AAATCGTTGA CGGAGTCAGG GACCTATGTT

[illegible]

Fig. 3 cont.

Fig. 3 cont.

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SLDIDHMEVMEASKSAAGSACPSPQAYQAAFEGAENIIVVTITGGLSGSFNAARVARDM
YIEEHPNVNIHLIDSLASGEMDLLVHQINRLISAGLDFPQVVEAITHYREHKKLLFVLA
KVDNLVKNGRLSKLVGTVVGLLNIRMVGEASAEGKLELLQKARGHKKSVTAAFEEMKKAG
YDGGRIVMHRNNAKFFQQFSELVKASFPTAVIDEVATSGLCIFYAEEGGLLMGYEVKA

Fig. 3 cont.

ORF2Z

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MKKYQVIIQDILTGIEEHRFRGEKLPsirQLREQYHCSKDTVQKAMLELKYQNKIYAVE
KSGYYILEDrdFDHTCRAQSYRLSRITYEDFRICLKESLIGRENYLFNYYHQEGLAEL
ISSVQSLMDYHVYTKDQLVITAGSQALYILTOMETLAGKTEILienPTYSRMIELIR
HQGIPYQTIERNLDGIDLEELESIFQTGKIKFFYTIPRLHNPLGSTYDIATKTAIVKLAK
QYDVYIIEDDYLAADFSSHSPLHYLTDNRVIYIKSFTPTLFPALRIGATSLPNQLRDI
FIKHKSLIDYDTNLIMOKALSLYIDNGMFARNTQHLHHIYHAQWNKIKDCLEKYALNIPY
RIPKGSVTFQLSKGILSPSIQHMFGKCYFFSGQKADFLQIFFEQDFADKLEQFVRYLNE

Fig. 3 cont.

ORF2Y

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MKIIIPNAKEVNTNLENASFYLLSDRSKPVLDAISQFDVKMAAFYKLNEAKAELEADRW
YRIRTGQAKTYPANQLYDGLMYRYMDRRGIDSKEENYL RDHVRVATALYGLIHPFEFISP
HRLDFQGS LKIGNQSLKQYWRPYDQEVGDDELILSLASSEFEQVFS PQIQRLVKILFM
EEKAGQLKVHSTISKKGRGRLLSWLAKNNIQELSDIQDFKVDGFEYCTSESTANQLTFXR
SIKM

Fig. 3 cont.

ORF2X

14/59

MKKRSGRSKSSKFKLVNFALLGLYSITLCLFLVTMYRYNILDFRYLNIVTILLVGVAVL
AGLLMWRKKARIFTALLLVFSLVITSVGIYGMQEVVKFSTRLNSNSTFSEYEMSILVPAN
SDITDVRQLTSILAPAEYDQDNITALLDDISKMESTQLATSPGTSYLTAYQSMLNGESQA
MVFNGVFTNILENEDPGFSSKVKKIYSFKVTQTVETATKQVSGDSFNIIYISGIDAYGPIS
TVSRSDVNIIMTVNRATHKILLTTTPRDSYVAFADGGQONQYDKLTHAGIYGVNASVHTLE
NFGYIDISNYVRLNFISFLQLIDLVGIDVYNDQEFTSLHGNYHFPVGQVHLNSDQALGF
VRERYSLTGGDNDRGKNQEKVIAALIKKMSTPENLKNYQAILSGLEGGSIQTDLSLETIMS
LVNTQLESQTFTVESQALTGTGRSDLSSYAMPGSQLYMEINQDSLEQSKAAIQSVLVE
K

Fig. 3 cont.

CPS2A

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MNNQEVNAIEIDVLELLKTIWRKKFLILLTAVLTAGLAFVYSSFLVTPQYDSTTRIYVVS
QNVEAGAGLTNQEIQAGTYLAKDYREIILSQDVLTVATELNLKESLKEKISVSI PVDTR
IVSISVRDADPNEAARIANSLRTFAVQKVVEVTKVSDVTITLEEAVPAEPTTPNTRNII
LGILLAGGILATGLVLVMEVLDDRVRKRPQDIEEVMGLTLLGIVPDSKKLK

Fig. 3 cont.

CPS2B

16/59

MAMLEIARTKREGVNKTEEFNAIRTNQLSGADIKVVGITSVKSNEGKSTTAASLAIAY
ARSGYKTVLVDADIRNSVMPGFFKPITKITGLTDYLAGTTDLSQLCDDIPNLTVIESG
KVSPNPTALLQSKNFENLLATLRRYYDYVIVDCPPLGLVIDAAIAQKCDAMVAVVEAGN
VKCSSLKKVKEQLEQTGTFPLGVILNKYDIATEKYSEYGNYGKKA

Fig. 3 cont.

CPS2C

16/59
MAMLEIARTKREGVNKTEEFNAIRTNQLSGADIKVVGITSVKSNEGKSTTAASLAIAY
ARSGYKTVLVDADIRNSVMPGFFKPITKITGLTDYLAGTTDLSQLCDDIPNLTVIESG
KVSPNPTALLQSKNFENLLATLRRYYDYVIVDCPPLGLVIDAAIAQKCDAMVAVVEAGN
VKCSSLKKVKEQLEQTGTFPLGVILNKYDIATEKYSEYGNYGKKA

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MIDIHSHIIFGVDDGPKTIEESLSLISEAYRQGVRYIVATSHRRKGMFETPEKIIMINFL
QLKEAVAEVYPEIRLCYGAELYYSKDILSKLEKKKVPTLNGSCYILLEFSTDPWKEIQE
AVNEMTLLGLTPVLAHIERYDALAFQSERVEKLIDKGCYTQVNSNHVLKPALIGERAKEF
KKRTRYFLEQDLVHCVASDMHNLYSRPPFMREAYQLVKKEYGEDRAKALFKKNPLLILKN
QVQ

Fig. 3 cont.

CPS2D

18/59

MNIEIGYRQTKLALFDMIAVTISAILTSHIPNADLNRSGIFIIMVHYFAFFISRMPVEF
EYRGNLIEFEKTFNYSIIFVIFLMAVSFMLENNFALSRRGAVYFTLINFVLVYLFNVIK
QFKDSFLFSTTYQKKTILITTAELWENMQVLFESDILFQKNLVALVILGTEIDKINLPLP
LYYSVEEAIGFSTREVVDYVFINLPSEYFDLKQLVSDFELLGIDVGVDINSFGFTVLKNK
KIQMLGDHSIVTFSTNFYKPSHIWMKRLLDILGAVVGLIISGIVSILLIPIIRRDGGPAI
FAQKRVGONGRIFTFYKFRSMFVDAEVRKKELMAQNQMGGMFKMDNDPRITPIGHFIRK
TSLDELPQFYNVLIGDMSLVGTRPPTVDEFEKYTPSQKRRLSFKPGITGLWQVSGRSDIT
DFNEVVRDLTYIDNWTIWSDIKILLKTVKVLLREGGQ

Fig. 3 cont.

CPS2E

19/59

MRTVYIIGSKGIPAKYGGFETFVEKLTEYQKDKSINYFVACTRENSAKSDITGEVFEHNG
ATCFNIDVPNIGSAKAILYDIMALKKSIEIAKDRNDTSPIFYILACRIGPFIYLFKKQIE
SIGGQLFVNPDGHEWLREKWSYPVRQYWKFSSESLMLKYADLLICDSKNIEKYIHEDYRKY
APETSYIAYGTDLDKSRLSPTDSVVREWYKEKEISENDYYLVVGRFVPENNYEVMIREFM
KSYSRKDFVLITNVEHNSFYEKLKKTGFDKDKRIKFVGTVYNQELLKYIRENAFAYFHG
HEVGGTNPSLLEALSSTKLNLLLDVGFNREVGEAGKYWNKDNLHRVIDSCEQLSQEQIN
DMDSLSTKQVKERFSWDFIVDEYEKLFKG

Fig. 3 cont.

CPS2F

1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000 21000 22000 23000 24000 25000 26000 27000 28000 29000 30000 31000 32000 33000 34000 35000 36000 37000 38000 39000 40000 41000 42000 43000 44000 45000 46000 47000 48000 49000 50000 51000 52000 53000 54000 55000 56000 57000 58000 59000 60000 61000 62000 63000 64000 65000 66000 67000 68000 69000 70000 71000 72000 73000 74000 75000 76000 77000 78000 79000 80000 81000 82000 83000 84000 85000 86000 87000 88000 89000 90000 91000 92000 93000 94000 95000 96000 97000 98000 99000 100000 101000 102000 103000 104000 105000 106000 107000 108000 109000 110000 111000 112000 113000 114000 115000 116000 117000 118000 119000 120000 121000 122000 123000 124000 125000 126000 127000 128000 129000 130000 131000 132000 133000 134000 135000 136000 137000 138000 139000 140000 141000 142000 143000 144000 145000 146000 147000 148000 149000 150000 151000 152000 153000 154000 155000 156000 157000 158000 159000 160000 161000 162000 163000 164000 165000 166000 167000 168000 169000 170000 171000 172000 173000 174000 175000 176000 177000 178000 179000 180000 181000 182000 183000 184000 185000 186000 187000 188000 189000 190000 191000 192000 193000 194000 195000 196000 197000 198000 199000 200000 201000 202000 203000 204000 205000 206000 207000 208000 209000 210000 211000 212000 213000 214000 215000 216000 217000 218000 219000 220000 221000 222000 223000 224000 225000 226000 227000 228000 229000 230000 231000 232000 233000 234000 235000 236000 237000 238000 239000 240000 241000 242000 243000 244000 245000 246000 247000 248000 249000 250000 251000 252000 253000 254000 255000 256000 257000 258000 259000 260000 261000 262000 263000 264000 265000 266000 267000 268000 269000 270000 271000 272000 273000 274000 275000 276000 277000 278000 279000 280000 281000 282000 283000 284000 285000 286000 287000 288000 289000 290000 291000 292000 293000 294000 295000 296000 297000 298000 299000 300000 301000 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20/59

10/00
MKKIYLHAGAELYGADKVLLELIGLDKNEFEAHVILPNDGVLVPALREVGAQVEVIN
PILRRKYFNPKGIFDYFISYHHYSKQIAQYATENKVDIIHNNTTAVLEGIYLRKRLPL
LWHVHEIIVKPKFISDSINFLMGRFADKIVTVSQAVANHIKQSPHIKDDQISVIYNGVDN
KVHYQSDARSVRERFDIDEEALVIGMVRVNAWKGGQDFLEAVAPILEQNPKAIAFIAGS
AFEGEWRVVELEKKISQLKVSSQVXRMDYYANTTELYNMFDIFVLPSTNPDPPTVVLK
AMACGKPVVGYRHGGVCEMVKEGVNGFLVTPNSPLNLSKVLQLSENINLRKKIGNNSIE
RQKEHFSLSKYVKNFSKVYTSKLVY

Fig. 3 cont.

CPS2G

[illegible]

21/55
MKIISFTMVNNESEIIIESFI RYNYNFIDEMVIIDNGCTDNTMQIIFNLIKEGYKISVYDE
SLEAYNQYRLDNKYLTKIIAEKNPDLIIPLDADEFIADSNPRKLLLEQLDLEKIHYVNWQ
WFMVTKKDDINDSFPIRRMQYCFEKPVVHSDGKPVTKCIIISAKYKKMNLKLSMGHHTV
FGPNVRIEHNDLKF AHYRAISQEQLIYKTCYTIRDIATMENNIETAQRTNQMALIES
GVDMWETAREASYSYDCNVIHAPIDLSFCKENIVIKYNELSR ETVAERVMKTGREMAVR
AYNWERKQEKKFLKPIIFVLDGLKGDEYIHPNPSNHLTILTEMYNVRGLLTDNHQIKFL
KVNRYRLIITPDFAKFLPHEFIVPDTXDIEQVKSQYVGTGVDLSKIIISLKEYRKEIGFIG
NLYALLGFVPNMLNRIYLYIQRNGIANTIIKIKSRL.

Fig. 3 cont.

CPS2H

[illegible][illegible][illegible]

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MEKVSIIIVPIFNTEKYLRECLDSIISQSYTNLEILLIDDGSSDSSTDICLEYAEQDGRIK
LFRLPNGGVSNARNYGIKNSTANYIMFVDSDDIVDGNIVESLYTCLKENDSDLSGGLLAT
FDGNYQESSELQKCQIDLEEIKEVRDLGNENFPNHMSGIFNSPCKLYKNIYINQGFDE
QWLGEDLLFNLYLKNIKKVRVNRNLYFARRSLQSTTNTFKYDVFIQLENLEKTDFDLF
VKIFGGQYEFVSFKETLQWHIIYYSLMFKNGDESLPKKLHIFKLYNRHSLDTLSIKRT
SSVFKRICKLIVANNLFKIFLNTLIREEKND

Fig. 3 cont.

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MINISIIVPI YNVEQYLSKC INSIVNQTYK HIEILLVNDG STDNSEEICL AYAKKDSRIR
YFKKENGGLS DARNYGISRA KGDYLAFLDS DDFIHSEFIQ RLHEAIEREN
ALVAVAGYDR VDASGHFLTA EPLPTNQAVL SGRNVCKKLL EADGHRFVVA WNKLYKKELF
EDFRFEKGKI HEDEYFTYRL LYELEKVAIV KECLYYYVDR ENSIITSSMT
DHRFHCLLEF QNERMDFYES RGDKELLLEC YRSFLAFAVL FLGKYNHWLS KQKKLLQTL
FRIVYKQLKQ NKRLALLMNA YYLVGCLHLN FSVFLKTGKD KIQERLRSE
SSTR

Fig. 3 cont.

CPS2K

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MSKKSIVVSG LVYTIGTILV QGLAFITLPI YTRVISQEVY GQFSLYNSWV GLVGLFIGLQ
LGGAFGPGWV HFREKFDDFV STLMVSSIAF FLPIFGLSFL LSQPLSLLFG
LPDWVVPLIF LQSLMIVVQG FFTTYLVQRQ QSMWTLPLSV LSAVINTALS LFLTFFMEND
FIARVMANPA TTGVLACVSX WFSQKKNGH FRKDYLRYGL SISIPLIFHG
LGHNVLNQFD RIMLGKMLTL SDVALYSFGY TLASILQIVF SSLNTVWCPW YFEKKRGADK
DLLSYVRYYL AIGLFVTFGF LTIYPELAML LGGSEYRFSM GFIPMIIVGV
FFVFLYSFPA NIQFYSGNTK FLPIGTFIAG VLNISVHFVL IPTKNLWCCF ATTASYLLLL
VLHYFVAKKK YAYDEVAIST FVKVIALVVV YTGLMTVFVG SIWIRWSLGI
AVLVVYAYIF RKELTVALNT FREKRSK

Fig. 3 cont.

CPS20

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MYIIIAEIGC  NHNGDVHLAR  KMVEVAVDCG  VDAVKFQTFK  ADLLISKYAP  KAEYQKITTG
ESDSQLEMTR  RLELSFEEYL  DLRDYCLEKG  VDVFPSTPFE  ESLDFLISTD
MPVKIPSGE  ITNLPYLEKI  GRQAKKVILS  TGMAMVDEIH  QAVKILQKGE  TTDISILHCT
TEYPTYPAL  NLNVLHTLKK  EFPNLTIGYS  DHSVGSEVPI  AAAAMGAELI
EKHFTLDNEM  EGPDKHASAT  PDILAALVKG  VRIVEQSLGK  FEKEPEEVFV  RNKIVARKSI
VAKKAIKAGE  VFTEENITVK  RPKGNGSPME  WYKVLGQVSE  QDFEEDQNIC
HSAFENQM

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CPS2P

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MKKICFVTGS RAEYGIMRRL LSYLQDDPEM ELDLVVTAMH LEEKYGMTVK DIEADKRRIV
KRIPLHLTDT SKQTIVKSLA TLTEQLTVLF EEVQYDLVLI LGDRYEMLPV
ANAALLYNIP ICHHGGEKT MGNFDESIRH AITKMSHLHL TSTDEFNRV IQLGENPTMY

Fig. 3 cont.

CPS2Q

[illegible]

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MKKVAFLGAG TFSDGVLPL DRTRYELIGY FEDKPISDYR GYPVFGPLQD VLTYLDDGKV
DAVFVTIGDN VKRKEIFDLL AKDHYDALFN IISEQANIFS PDSIKGRGVF
IGFSSFVGAD SYVDNCIIN TGAIVEHHTT VEAHCNITPG VTINGLCRIG ESTYIGSGST
VIQCIEIAPY TTLGAGTVVL KSLTESGTYV GVPARKIK

Fig. 3 cont.

CPS2S

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MEPICLIPAR SGSKGLPNKN MLFLDGVPMI FHTIRAAIES GCFKKENIYV STDSEVYKEI
CETTGVQVLM RPADLATDFT TSFQLNEHFL QDFSDDQVHV LLQVTSPLRS
GKHVKEAMEL YGKGQADHVV SFTKVDKSPT LFSTLDENGF AKDIAGLGGS YRRQDEKTLY
YPNGAIYISS KQAYLADKTY FSEKTAAYVM TKEDSIDVDD HFDFTGVIGR
IYFDYQRREQ QNKPFYKREL KRLCEQRVHD SLVIGDSRLL ALLLDGFDNI SIGGMTASTA
LENQGLFLAT PIKKVLLSLG VNDLITDYPL HMIEDTIRQL MESLVSKAEQ
VFVTTIAYTL FRDSVSNEEI VQLNDVIVQS ASELGISVID LNEVVEKEAM LDYQYTNDGL
HFNQIGQERV NQLILTSLTR

Fig. 3 cont.

CPS2T

ATCGCCAAAC GAAATTGGCA TTATTGATA TGATAGCAGT TGCAATTTCT GCAATCTTAA CAAGTCATAT
 ACCAAATGCT GATTTAAATC GTTCTGGAAT TTTTATCATA
 ATGATGGTTC ATTATTTTGC ATTTTATATA TCTCGTATGC CAGTTGAATT TGAGTATAGA GGTAATCTGA
 TAGAGTTTGA AAAACATTT AACTATAGTA TAATATTTCG
 AATTTTCTT ACGGCAGTAT CATTTTGTG GGAGAATAAT TTCGCACTTT CAAGACGTGG TGCCGTGTAT
 TTCACATTAA TAAACTTCGT TTTGGTATAC CTATTTAACG
 TAATTATTAA GCAGTTTAAAG GATAGCTTTC TATTTTCGAC AATCTATCAA AAAAGACGA TTCTAATTAC
 AACGGCTGAA CGATGGGAAA ATATGCAAGT TTTATTTGAA
 TCACATAAAC AAATTCAAAA AAATCTTGT GCATTGGTAG TTTTAGGTAC AGAAATAGAT AAAATTAATT
 TATCATTACC GCTCTATTAT TCTGTGGAAG AAGCTATAGA
 GTTTTCAACA AGGGAAGTGG TCGACCAGT CTTTATAAAT CTACCAAGTG AGTTTTTAGA CGTAAAGCAA
 TTCGTTTCAG ATTTTGAGTT GTTAGGTATT GATGTAAGCG
 TTGATATTAA TTCATTGGT TTTACTGCGT TGAAAAACAA AAAATCCAA CTGCTAGGTG ACCATAGCAT
 TGTAACTTT TCCACAAAT TTTATAAGCC TAGTCATATC
 ATGATGAAAC GACTTTTGA TATACTCGGA GCGGTAGTCG GGTAAATTAT TTGTGGTATA GTTCTATTT
 TGTTAGTTC AATTATTCGT AGAGATGGT GACCGGCTAT
 TTTTGCTCAG AAACGAGTTG GACAGAATGG ACGCATATTT ACATTCTACA AGTTTCGATC GATGTATGTT
 GATGCTGAGG AGCGCAAAAA AGACTTGCTC AGCCAAAACC
 AGATGCAAGG GTGGGTATGT TTTAAAATGG GAAAACGAT CCTAGAATTA CTCCAATTGG ACATTTTATA
 CGCAAAAACA AGTTTAGACG AGTTACCACA GTTTTATAAT
 GTTTTAATTG GCGATATGAG TCTAGTTGGT ACACGTCCAC CTACAGTTGA TGAATTTGAA AAATATACTC
 CTGCTCAAAA GAGACGATTG AGTTTTAAAC CAGGGATTAC
 AGGTCTCTGG CAGGTAGTG GTCGTAGTAA TATCAGACG TTCGACGACG TAGTTCGGTT GGACTTAGCA
 TACATTGATA ATTGGACTAT CTGGTCAGAT ATTAATAATT
 TATTAAAGAC AGTGAAAGT GTATTGTTGA GAGAGGGAAG TAAGTAAAAG TATATGAAAG TTTGTTTGGT
 CGGTTCTTCA GGGGGACATT TGACTCACTT GTATTTGTTA
 AAACCGTTTT GGAAGGAAGA AGAACGTTTT TGGGTAACAT TTGATAAGA GGATGCAAGA AGTCTTTTGA
 AGAATGAAAA AATGTATCCA TGTTACTTTC CAACAAATCG
 CAATCTCATT AATTTAGTGA AAAATACTTT CTTAGCTTTC AAAATTTTAC GTGATGAGAA ACCAGATGTT
 ATTATTTTCT CTGGTGCGGC CGTTGCTGTC CCGTTCTTTT
 ACATCGGAAA ACTATTTGGA GCAAGACGA TTTATATTGA AGTATTTGAT CGAGTTAATA AATCTACATT
 AACTGAAAA CTAGTTTATC CCGTAACAGA TATTTTATT
 GTTCAGTGGG AAGAAATGAA GAAGGTATAT CCTAAATCTA TTAAGTTGGG GAGTATTTTT TAATGATTTT
 TGTAACAGTA GGAACATCAT AACAACAGTT TAATCGATTG
 ATAAAAGAGA TTGATTTATT GAAAAAAT GGAAGTATA CCGACGAAAT ATTTATTCAA ACAGGATATT
 CTGATATAT TCCAGAATAT TGCAAGTATA AAAAATTTCT
 CAGTTACAAA GAAATGGAAC AATATATTAA CAAATCAGAA GTAGTTATTT GCCACGGAGG CCCCCTACT
 TTTATGAATT CATTATCCAA AGGAAAAAAA CAATTATTGT
 TTCCTAGACA AAAAAGTAT GGTGAACATG TAAATGATCA TCAAGTAGAG TTTGTAAGAA GAATTTTACA
 AGATAATAAT ATTTTATTTA TAGAAAAAT AGATGATTTG
 TTTGAAAAAA TTATTGAAGT TTTCTAAGCAA ACTAAGTTTA CATCAAATAA TAATTTTTTT TGTGAAAGAT
 TAAAACAAAT AGTTGAAAAA TTTAATGAGG ATCAAGAAAA
 TGAATAATAA AAAAGATGCA TATTTGATAA TGGCTTATCA TAATTTTTCT CAGATTTTAC TGGAGAGGGA
 TACAGATATT ATCATCTTCT CTCAGGAGAA TGCACACCAT
 TAGTTCCTTC AGAATACCTG TATAATTATT TTAATATTTC TCAGGATTTA TATGTTGAAT TTACAAAAGA
 TGAGCAAAAA TATAAAGAAA ATAGGATATA TGAACGAGTT
 AAATGTTACA GATTATTTCC TAATATATCA GAAAAAATA TTGATAATGT ACTGTTTAGA ATTTTATTAA
 GAATGTATCG AGCTTTTGAA TACTATTTAC AAAGATTGTT
 GTTTATTGAT AGAATAAAAA ACATGGTCTA AGAATAAGAT TTGGTTCTAA TTGGGTTTCG CTTCCACATG
 ATTTTGTGGC AATTCTTTTA TCAAATGAAA ACGAAACAGC
 TTATTTATTT AAGTAATCTA AATGTCCAGA TGAATATTAT ATACAGACAA TTATAGAAAA ATATGAATTT
 TCAAATAGAT TATCTAAATA TGGAAATTTA AGATATATAA
 AGTGGAAAA ATCAACATCT TCTCCTATTG TCTTTACAGA TGATTCTATT GATGAATTGC TAAATGCAAG
 AAATTTAGGT TTTTATTG CTAGAAAGTT AAAAATAGAA
 AATAAATCTA AATTTAAAGA AATTATTACT AAAAATAA ATAGTTGATT TTGTGAGAGT AATGTATGTT
 TAAATTTATTT AAATATGACC CGGAATATTT TATTTTAAAG
 TACTTCTGGT TGATTATTTT TATTCCAGAG CAAAAGTATG TATTTTTATT AATTTTATG AATTTAATTT
 TATTTTATAT AAAATTTTGG AAAACTAAGC TAATATTAAA
 AAATGAAATT TTATTGTTTT TATTATGGTC TATATTATGT TTTGTTTCAG TAGTCACAAG TATGTTTGT
 GAAATAAATT TTGAAAGATT ATTTGCAGAT TTTACTGCTC
 CCATAAATTTG GATTATTGCA ATAATGTATT ATAATTTGTA TTCATTTATA AATATTGATT ATAAAAAATT
 AAAAAATAGT ATCTTTTTTA GTTTTTTAGT TTTATTAGGT
 ATATCTGCAT TGTATATTAT TCAAATGGG AAAGATATTG TATTTTTAGA CAGACACCTT ATAGGACTAG
 ACTATCTTAT AACAGGCGTC AAAACAAGGT TGGTTGGCTT
 TATGAACAT CCTACGTAA ATACCACTAC AATTATAGTT TCAATCCGT TAATCTTTCG ACTTATAAAA
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TACCGATCTA TTTAAGTGGG TCGAGAATTG GTAGTTTATC GCTAGCAATA TTAATTATAT GCTTGTATTG
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 CTTCAATAGG TATTTGGAAT AATATAAATT TAAAAAGGA
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 TTAGAGGTTA TTCTCGTAAA TGATGGAAGT ACTGATGATT CTGAGAAAAT TTGCTTAAAC TATATGAAGA
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 GAGACTGTAA AAGAATTTTT GTCAGGATCT AATATAGAAA ATAATGTTTG GTGCAAGCTT TATTCACGAG
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 GAATATTATT ATAATTATGT CATTCGTAAC AGTTCGCTTA
 TTAATCAGAA ATTCTCTATA AATAATATTG ATTTAGTCAC AAGATTGGAG AATTACCCCT TTAAGTTAAA
 AAGAGAGTTT AGTCATTATT TTGATGCAAA AGTTATTAAA
 GAGAAGGTTA AATGTTTAAA CAAAATGTAT TCAACAGATT GTTTGGATAA TGAGTTCTTG CCAATATTAG
 AGTCTTATCG AAAAGAAATA CGTAGATATC CATTATTAA
 AGCGAAAAGA TATTTATCAA GAAAGCATT AGTTACGTTG TATTTGATGA AATTTTCGCC TAACTATAT
 GTAATGTTAT ATAAGAAATT TCAAAGCAG TAGAGGTAAG
 AATGGATAAA ATTAGTGTTA TTGTTCCAGT TTATAATGTA GATAAATATT TAAGTAGTTG TATAGAAAGC
 ATTATTAATC AAAATTATAA AAATATAGAA ATATTATTGA
 TAGATGATGG CTCTGTAGAT GATTCTGCTA AAATATGCAA GGAATATGCA GAAAAAGATA AAAGAGTAAA
 AATTTTTTTC ACTAATCATA GTGGAGTATC AAATGCTAGA
 AATCATGGAA TAAAGCGGAG TACAGCTGAA TATATTATGT TTGTTGACTC TGATGATGTT GTTGATAGTA
 GATTAGTAGA AAAATTATAT TTTAATATTA TAAAAAGTAG
 AAGTGATTTA TCTGGTTGTT TGTACGCTAC TTTTTCAGAA AATATAAATA ATTTTGAAGT GAATAATCCA
 AATATTGATT TTGAAGCAAT TAATACCGTG CAGGACATGG
 GAGAAAAAAA TTTTATGAAT TTGTATATAA ATAATATTTT TTCTACTCCT GTTTGTAAAC TATATAAGAA
 AAGATACATA ACAGATCTTT TTCAAGAGAA TCAATGGTTA
 GGAGAAGATT TACTTTTTTA TCTGCATTAT TTAAGAATA TAGATAGAGT TAGTTATTTG ACTGAACATC
 TTTATTTTTA TAGGAGAGGT ATACTAAGTA CAGTAAATTC
 TTTTAAAGAA GGTGTGTTTT TGCAATTGGA AAATTTGCAA AAACAAGTGA TAGTATTGTT TAAGCAAATA
 TATGGTGAGG ATTTTGACGT ATCAATTGTT AAAGATACTA
 TACGTTGGCA AGTATTTTAT TATAGCTTAC TAATGTTTAA ATACGGAAAA CAGTCTATTT TTGACAAATT
 TTTAATTTTT AGAAATCTTT ATAAAAATA TTATTTTAAAC
 TTGTTAAAAG TATCTAACAA AAATTCCTTG TCTAAAAATT TTTGTATAAG AATTGTTTCG AACAAAGTTT
 TTAAAAAAAT ATTATGGTTA TAATAGGAAG ATATCATGGA GTAGAAAAAT ATTTATCTAA ATGTATAGAT
 TACTATTAGT AAAATTTCTA TAATTGTACC TATATATAAT
 AGCATTGTAA ATCAGACCTA CAAACATATA GAGATTCTTC
 TGGTGAATGA CCGTAGTACG GATAATTCGG AAGAAATTTG TTTAGCATAT GCGAAGAAAG ATAGTCGCAT
 TCGTTATTTT AAAAAAGAGA ACGGCGGGCT ATCAGATGCC
 CGTAATTATG GCATAAGTCG CGCCAGGGT GACTACTTAG CTTTTATAGA CTCAGATGAT TTTATTCATT
 CGGAGTTCAT CCAACGTTA CACGAAGCAA TTGAGAGAGA
 GAATGCCCTT GTGGCAGTTG CTGGTTATGA TAGGGTAGAT GCTTCGGGGC ATTTCTTAAAC AGCAGAGCCG
 CTTCTACAA ATCAGGCTGT TCTGAGCGGC AGGAATGTTT
 GTAAAAAGCT GCTAGAGCGG GATGTCATC GCTTTGTTGGT GGCCTGTAAT AAACCTCTATA AAAAAGAACT
 ATTTGAAGAT TTTGATTTG AAAAGGGTAA GATTCATGAA
 GATGAATACT TCACTTATCG CTTGCTCTAT GAGTTAGAAA AAGTTGCAAT AGTTAAGGAG TGCTTGACT
 ATTATGTTGA CCGAGAAAAT AGTATCACAA CTTCTAGCAT
 GACTGACCAT CGCTTCCATT GCCTACTGGA ATTTCAAAT GAACGAATGG ACTTCTATGA AAGTAGAGGA
 GATAAGAGC TCTTACTAGA GTGTTACGT TCATTTTATG
 CCTTTGCTGT TTTGTTTTTA GGCAATATA ATCATTGGTT GAGCAAACAG CAAAAGAAGC TT

Fig. 4 cont.

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RQTKLALFDM IAVAISAILT SHIPNADLNR SGIFIIMVH YFAFFISRMV VEFYRGNLI
EFEKTFNYSI IFAIFLTAVS FLENNFALS RRGAVYFTLI NFVLVYLFNV
IIKQFKDSFL FSTIYQKTI LITTAERWEN MQVLFESHKQ IQKNLVALVV LGTEIDKINL
SLPLYYSVEE AIEFSTREVV DHVFINLPSE FLDVKQFVSD FELLGIDVSV
DINSFGFTAL KNKKIQLLGD HSIVTFSTNF YKPSHIMMKR LLDILGAVVG LIICGIVSIL
LVPIIRRDGG PAIFAQKRVG QNGRIFTFYK FRSMYVDAEE RKKDILLSNQ
MQGWVCFKMG KTILELLQLD ISYAKTSLDE LPQFYNVLIG DMSLVGTRPP TVDEFEKYTP
GQKRRLSFKP GITGLWQVSG RSNITDFDDV VRDLAYIDN WTIWSDIKIL
LKTVMKVLLR EGSK

Fig. 4 cont.

CPS1E

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MKVCLVGSSG GHLTHLYLLK PFWKEERFW VTFDKEDARS LLKNEKMYPC YFPTNRNLIN
LVKNTFLAFK ILRDEKPDVI ISSGAAVAP FFYIGKLFGA KTIYIEVFDR
VNKSTLTGKL VYPVTDIFIV QWEEMKKVYP KSNINLSIF

Fig. 4 cont.

CPS1F

35/59

MIFVTVGTHE QQFNRLIKEI DLLKNGSIT DEIFIQTGYS DYIPEYCKYK KFLSYKEMEQ
YINKSEVVIC HGGPATFMNS LSKGKKQLLF PRQKKYGEHV NDHQVEFVRR
ILQDNNILFI ENIDDLFEKI IEVSKQTNFT SNNNFFCERL KQIVEKFNED QENE

Fig. 4 cont.

CPS1G

[illegible]

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MFKLFKYDPE YFFKYFWLI IFIPEQKYVF LLIFMNLILF HIKFLKTKLI LKNEILLFLL
WSILCFVSVV TSMFVEINFE RLFADFTAPI IWIIAIMYYN LYSFINIDYK
KLKNSIFFSF LVLLGISALY IIQNGKDIVF LDRHLIGLDY LITGVKTRLV GFMNYPTLNT
TTIIVSIPLI FALIKNKMQQ FFFLCLAFIP IYLSGSRIGS LSPLAILIIC
LLWRYIGGKF AWIKKLIVIF VILLIILNTE LLYHEILAVY NSRESSNEAR FIIYQGSIDK
VLENNILFGY GISEYSVTGT WLGSHSGYIS FFYKSGIVGL ILLMFSFFYV
IKKSYGVNGE TALFYFTSLA IFFIYETIDP IIIILVLFFS SIGIWNNINF KKMETKNE

Fig. 4 cont.

CPS1H

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MNDLISVIVP IYNVDYLDK CINSIINQTY TNLEVLVND GSTDDSEKIC LNYMKNDGRI
KYYKKINGGL ADARNFGLEH ATGKYIAFVD SDDYIEVAMF ERMHDNITEY
NADIAEIDFC LVDENGYTKK KRNSNFHVLV TRETVKELS GSNIENNQVK KLYSRDIKD
IKFOINNRSI GEDLLFNLEV LNNVTRVVD REYYYNVVI RNSSLINQKF
SINNIDLVTR LENYPFKLKR EFSHYFDAK IKEKVKCLNK MYSTDCLDNE FLPILESYRK
EIRRYPFIKA KRYLSRKHV TLYLMKFSPK LYVMLYKKFQ KQ

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CPS1I

[illegible][illegible][illegible][illegible]

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MDTISKISII VPIYNVEKYL SKCIDSIVNQ TYKHIEILLV NDGSTDNSEE ICLAYAKKDS
RIRYFKKENG GLSDARNYGI SRAKGDYLAF IDSDDFIHSE FIQRLHEAIE
RENALVAVAG YDRVDASGHF LTAEPLPTNQ AVLSGRNVCK KLEADGHRF VVACNKLYKK
ELFEDFRFEK GKIHEDEYFT YRLLYELEKV AIVKECLYYY VDRENSITTS
SMTDHRFHCL LEFQNERMDF YESRGDKELL LECYRSFLAF AVLFLGKYNH WLSKQOKK

Fig. 4 cont.

CPS1K

MDTISKISII VPIYNVEKYL SKCIDSIVNQ TYKHIEILLV NDGSTDNSEE ICLAYAKKDS
RIRYFKKENG GLSDARNYGI SRAKGDYLAF IDSDDFIHSE FIQRLHEAIE
RENALVAVAG YDRVDASGHF LTAEPLPTNQ AVLSGRNVCK KLEADGHRF VVACNKLYKK
ELFEDFRFEK GKIHEDEYFT YRLLYELEKV AIVKECLYYY VDRENSITTS
SMTDHRFHCL LEFQNERMDF YESRGDKELL LECYRSFLAF AVLFLGKYNH WLSKQOKK

AAGCTTATCG TCAAGGTGTT CGCTATATCG TGGCGACATC TCATAGACGA AAAGGGATGT
TTGAAACACC AGAAAAAGTT ATCATGACTA ACTTTCTTCA ATTTAAAGAC
GCAGTAGCAG AAGTTTATCC TGAAATACGA TTGTGCTATG GTGCTGAATT GTATTATAGT
AAAGATATAT TAAGCAAAT TGAAAAAAG AAAGTACCCA CACTTAATGG
CTCGCGCTAT ATTCTTTTGG AGTTCAGTAG TGATACTCCT TGGAAAGAGA TTCAAGAAGC
AGTGAACGAA GTGACGCTAC TTGGGCTAAC TCCCCTACTT GCCCATATAG
AACGATATGA CGCCCTAGCG TTTCATGCAG AGAGAGTAGA AGAGTTAATT GACAAGGGAT
GCTATACTCA GGTAAATAGT AATCATGTGC TGAAGCCAC TTTAATTGGT
GATCGAGCAA AAGAATTTAA AAAACGTACT CGGTATTTTT TAGAGCAGGA TTTAGTACAT
TGTGTTGCTA GCGATATGCA TAATTATCT AGTAGACCTC CGTTTATGAG
GGAGGCTTAT AAGTTGCTAA CAGAGGAATT TGGCAAAGAT AAAGCGAAAG CGTTGCTAAA
AAAGAATCCT CTTATGCTAT TAAAAACCA GCGGATTAA ACTGGTTACT
CTAGATTGTG GAGAGAAAAA TGGATTTAGG AACTGTTACT GATAAAGTGT TAGAACGCAA
CAGTAAACGA TTGATACTCG TGTGCATGGA TACGTGTCTT CTTATAGTTT
CCATGATTTT GAGCAGACTG TTTTGGATG TTATTATTGA CATACCAGAT GAACGCTTCA
TTCTTGCACT TTTATTCGTA TCAATTTTAT ATTTGATTCT ATCGTTTAGA
TTAAAGTCT TTTCAATTAAT TACGCGTTAC ACAGGGTATC AGAGTTATGT AAAAATAGGA
CTTAGTTTAA TATCTGCGCA TTCATTGTTT TTAATTATCT CAATGGTGT
GTGGCAGGCT TTTAGTTATC GTTTCATCTT AGTATCCTTA TTTTGTCTGT ATGTAATGCT
CACTACTCCG AGGATTGTTT GGAAAGTCTT ACATGAGACG AGAAAAAATG
CTATCCGTAA GAAGGATAGC CCACTAAGAA TCTTAGTAGT AGGTGCTGGA GATGGTGGTA
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GGTATCGTTG ATCGTGATCC AAATAAACTT GGAACATTTA TCCGTACGGC TAAAGTTTTA
GGAAACCGTA ATGATATTC ACGACTGGTA GAGGAATTAG CTGTTGACCA
AGTGACGATT GCCATCCCTT CTTTAAATGG TAAGGAGCGA GAGAAGATTG TTGAAATCTG
TAACACTACA GGAGTGACCG TCAATAATAT GCCGAGTATT GAAGACATTA
TGGCGGGGAA CATGTCTGTC AGTGCCCTTC AGGAAATTGA CGTAGCAGAC CTTCTTGGTC
GACCAGAGGT TGTTTTGGAT CAGGATGAAT TGAATCAGTT TTTCCAAGGG
AAAACAATCC TTGTCACAGG AGCAGGTGGC TCTATCGGTT CAGAGCTATG TCGTCAAATT
GCTAAGTTTA CGCCTAAACG CTTGTTGTTG CTTGGACATG GAGAAAATTC
AATCTATCTC ATTCACTGAG AGTTACTGGA AAAGTACCAA GGTAAGATTG AGTTGGTCCC
TCTCATTTGA GATATTCAAG ATAGAGAATT GATTTTTAGC ATAATGGCTG
AATATCAACC CGATGTTGTT TATCATGCTG CAGCACATAA GCATGTTCTT TTGATGGAAT
ATAATCCACA TGAAGCAGTG AAGAATAATA TTTTGGAAAC GAAGAATGTG
GCTAGGGCGG CTAAGAACTGC AAAGGTTGCC AAATTTGTTA TGGTTTCAAC AGATAAAGCT
GTAAATCCAC CAAATGTCAT GGGAGCGACT AAACGTGTTG CAGAAATGAT
TGTATCAGGT TTAACAGAGC CAGGTGAGAC TCAATTTGCG GCAGTCCGGT TTGGGAATGT
TCTAGGTAGT CGTGGAAAGT TTGTTCCGCT ATTCAAAGAG CAAATTAGAA
AAGGTGGACC GTTACGGTT ACCGACTTTA GGATGACTCG TTATTTCTATG ACGATTCCCTG
AGGCAAGTCG TTTGGTTATC CAAGCTGGAC ATTTGGCAAA AGGTGGAGAA
ATATTTGCTT TGGATATGGG CGAGCCAGTA CAAATCCTGG AATTGGCAAG AAAAGTTATC
TTGTAAAGTG GACACACAGA GGAAGAAATC GGGATTGTAG AATCTGGAAT
CAGACCAGGC GAGAACTCT ACGAGGAATT ATTATCAACA GAAGAACGTG TCAGCGAACA
GATTACGAA AAAATATTTG TGGGTCGCGT TACAAATAAG CAGTCGGACA
TTGTCAATTC ATTTATCAAT GGATTACTCC AAAAAGATAG AAATGAATTA AAAAATATGT
TGATTGAATT TGCAAAACAA GAATAAGAAA GTAAAAATA TTTTACTTTT
CCTAGAGTTT AAACGATGTT TAAGTTCTAG GAAGGTTAGA ATACCTAATT AACACAATA
TTACTATTTA TTAAGAGTCA GATAATAGCA ACTAAGTGCT ACAAACATC
TTTATAATAA GTATATTTGG TCAAAAGGGA GATGTGAAAT GTATCCAATT TGTAACGTA
TTTTAGCAAT TATTATCTCA GGGATTGCTA TTGTTGTTCT GAGTCCAATT
TTATTATTGA TTGCATTGGC AATTAAATTA GATTCTAAAG GTCCGGTATT ATTTAAACAA
AAGCGGGTTG GTAAAAACAA GTCATACTTT ATGATTATAA AATTCCGTTT
TATGTACGTT GACGCACCAA GTGATATGCC GACTCATCTA TTAAAGGATC CTAAGGCGAT
GATTACCAAG GTGGGCGCGT TTCTCAGAAA AACAAGTTTA GATGAACGTC
CACAGCTTTT TAATATTTT AAAGGTGAAA TGGCGATTGT TGGTCCACGC CCAGCCTTAT
GGAATCAATA TGACTTAATT GAAGAGCGAG ATAAATATGG TGCAAAATGAT
ATTGCTCTG GACTAACCGG TTGGGCTCAA ATTAATGGTC GTGATGAATT GGAAATTGAT
GAAAAGTCAA AATTAGATGG ATATTATGTT CAAAATATGA GTCTAGGTTT
GGATATTAA TGTTCTTAG GTACATTCCT CAGTGTAGCC AGAAGCGAAG GTGTTGTTGA
AGGTGGAACA GGGCAGAAAG GAAAAGGATG AAATTTTCAG TATTAATGTC
GGTCTATGAG AAAGAAAAAC CAGAGTTTCT TAGGGAATCT TTGGAAAGCA TCCTTGTCAA
TCAAACAATG ATTCCAACGG AGGTGTCTT GGTAGAGGAT GGGCCACTCA
ATCAGAGCTT ATATAGTATT TTAGAAGAA TTAAAGTCCG ATTTTCATTT TTTAAACGA
TAGCCTTGGG AAAGAATTCC GGTTAGGAA TTGCACTGAA TGAAGGTTT
AAACATTGTA ATTATGAGTG GGTTCGACG AAATGGATTG TGATGATGTT GCATATACAT
ACACGTTTTG AAAAGCAAGT TAACTTTATA AAACAAACC CGACTATAGA

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TATTGAGATA GATGAGTTCT TAAATTCTAC TAGTGAAATA GTTCTCATA AAAATGTTCC
AACCCAGCAC GATGAAATAT TAAAGATGGC AAGGCGGGAG AAATCCATGT
GCCACATGAC TGTAAATGTTT AAAAAGAAAA GTGTCGAGAG AGCAGGGGGG TATCAAACAC
TTCCGTACGT AGAAGATTAT TTCTTTGGG TGC GCATGAT TGCTTCAGGA
TCGAAATTTG CAAACATTGA TGAAACACTA GTTCTTGCAC GTGTTGGAAA TGGGATGTTT
AATAGGAGGG GGAACAGAGA ACAAATTAAC AGTTGGACAT TACTAATTGA
ATTTATGTTA GCTCAAGGAA TTGTTACACC ACTAGATGTA TTTATTAATC AAATTTACAT
TAGGGTCTTT GTTTATATGC CAACTTGAT AAAGAACTC ATTTATGGAA
AAATCTTAAG GAAATAGTAT GATTACAGTA TTGATGGCTA CATATAATGG AAGCCCATT
ATAATAAAAC AGTTAGATTC AATTCGAAAT CAAAGTGTAT CAGCAGACAA
AGTTATTATT TGGGATGATT GCTCGACAGA TGATACAATA AAAATAATAA AAGATTATAT
AAAAAATAT TCTTTGGATT CATGGGTTGT CTCTCAAAAT AAATCTAATC
AGGGGCATTA TCAAACATTT ATAAATTTGA CAAAGTTAGT TCAGGAAGGA ATAGTCTTTT
TTTCAGATCA AGATGATATT TGGGACTGTC ATAAAATTGA GACAATGCTT
CCAATCTTTG ACAGAGAAAA TGTATCAATG GTGTTTTGCA AATCCAGATT GATTGATGAA
AACGGAAATA TTATCAGTAG CCCAGATACT TCGGATAGAA TCAATACGTA
CTCTCTAGA

```

Fig. 5 cont.

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AYRQGVRYIV ATSHRRKGMF ETPEKIMTN FLQFKDAVAE VYPEIRLCYG AELYYSKDIL
SKLEKKKVPT LNSRYILLE FSSDPWKEI QEAVNEVTLL GLTPVLAHIE
RYDALAFHAE RVEELIDKGC YTQVNSNHVL KPTLIGDRAK EFKKRTRYFL EQDLVHCVAS
DMHNLSSRPP FMREAYKLLT EEF GKDKAKA LLKKNPLMLL KNQAI

Fig. 5 cont.

CPS9D

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

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MDLGTVTDKL	LERNKRLLIL	VCMDTCLLIV	SMILSRFLD	VIIDIPDERF	ILAVLFVSIL
YLILSFRLKV	FSLITRYTGY	QSYVKIGLSL	ISAHSLFLII	SMVLWQAFSY	
RFILVSLFLS	YVMLITPRIV	WKVLHETRKN	AIRKKDSPLR	ILVVGAGDGG	NIFINTVKDR
KLNFEIVGIV	DRDPNKLGT	IRTAKVLGNR	NDIPRLVEEL	AVDQVTIAIP	
SLNGKEREKI	VEICNTTGV	VNNMPSIEDI	MAGNMSVSFA	QEIDVADLLG	RPEVVLDQDE
LNQFFQGKTI	LVTGAGGSIG	SELCRQIAKF	TPKRLLLLGH	GENSIYLIHR	
ELLEKYQGKI	ELVPLIADIQ	DRELIFSIMA	EYQPDVVYHA	AAHKHVPLME	YNPHEAVKNN
IFGTKNVAEA	AKTAKVAKFV	MVSTDKAVNP	PNVMGATKRV	AEMIVTGLNE	
PGQTQFAAVR	FGNVLGSRGS	VVPLFKEQIR	KGGPVTVTDF	RMTRYFMTIP	EASRLVIQAG
HLAKGGEIFV	LDMGEPVQIL	ELARKVILLS	GHTEEEIGIV	ESGIRPGEKL	
YEELLSTEER	VSEQIHEKIF	VGRVTNKQSD	IVNSFINGLL	QKDRNELKNM	LIEFAKQE

Fig. 5 cont.

CPS9E

MYPICKRILA IIISGIAIVV LSPILLILAL AIKLDKSGPV LFKQKRVGKN KSYFMIYKFR
SMYVDAPSDM PTHLLKDKPA MITKVGAFRL KTSLDLPQL FNIFKGEMAI
VGPRPALWNQ YDLIEERDKY GANDIRPGLT GWAQINGRDE LEIDEKSKLD GYYVQNMSLG
LDIKCFLGTF LSVARSEGVV EGGTGQKGKG

CPS9F

MKFSVLMSVY EKEKPEFLRE SLESILVNQT MIPTEVVVLE DGPLNQSLYS ILEEFKSRFS
 FFKTIALEKN SGLGIALNEG LKHNCYEWVC TKWILMLMI HTRFEKQVNF
 IKQNPTIDIE IDEFLNSTSE IVSHKNVPTQ HDEILKMARR EKSMCHMTVM FKKKSVERAG
 GYQTLPYVED YFLWVRMIAS GSKFANIDET LVLARVNGMG FNRRGNREQI
 NSWTLLEIFM LAQGIVTPLD VFINQIYIRV FVYMPTWIKK LIYGKILRK

CPS9G

CTGCAGCACA TAAGCATGTT CCATTGATGG AATATAATCC ACATGAAGCA GTGAAGAATA
 ATATTTTTTGG AACGAAGAAT GTGGCTGAGG CGGCTAAAAC TGCAAAGGTT
 GCCAAATTTG TTATGGTTTC AACAGATAAA GCTGTTAATC CGCCAAATGT CATGGGAGCG
 ACTAAACGTG TTGCAGAAAT GATTGTAACA GGTTTAAACG AGCCAGGTCA
 GACTCAATTT GCGGCAGTCC GTTTTGGGAA TGTTCTAGGT AGTCGTGGAA GTGTTGTTCC
 GCTATTCAAA GAGCAAATTA GAAAAGGTGG ACCTGTTACG GTTACCGACT
 TTAGGATGAC TCGTTATTTT ATGACGATTG CTGAGGCAAG TCGTTTGGTT ATCCAAGCTG
 GACATTTGGC AAAAGGTGGA GAAATCTTTG TCTTGGATAT GGGTGAGCCA
 GTACAAATCC TGGAAATTGGC AAGAAAAGTT ATCTTGTAA GCGGACATAC AGAGGAAGAA
 ATCGGGATTG TAGAATCTGG AATCAGACCA GCGAGAAAC TCTACGAGGA
 ATTTGTATCA ACAGAGAAC GTGTCAGCGA ACAGATTCAT GAAAAATAT TTGTGGSTCG
 CGTTACAAAT AAGCAGTCGG ACATTGTCAA TTCATTTATC AATGGATTAC
 TCCAAAAAGA TAGAAATGAA TTAAGAATA TGTTGATTGA ATTTGCAAAA CAAGAATAAG
 AAAGTAAAAA ATATTTTAC TTTCTAGAG TTTAAACGAT GTTTAAGTTC
 TAGGAAGGTT GGAATTGCTT TCGTGGAGGT GATAGATAGA AACCTATATA TTTGTAGAAG
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 GGTATTTAAT GCCAAACAGG TGAATGCAAC CTCTCGCTCG TTAATAAGCA GGAGATAGTA
 AAGTTGCTTG AAAGAGAGTT TGTAATCAG TATAAGTAGG CTAAAGTGAG
 AATATATATC TATTATTATC GGTAAATGATA CTATTATTGA GAATTATTGT AGTGGGGATA
 AAAATAATTT TTGGTGATTT TATCGTCCGA CTTAAAGGTG GGTAAAAA
 GTACTTATAT TCTTTTAGAA TTGATGAAA ATATGGGGGA ATATAATATT TATAGGAGAT
 ACGATGACTA GAGTAGAGTT GATTACTAGA GAATTTTTTA AGAAGAATGA
 AGCAACCACT AAATATTTTC AGAAGATAGA ATCAAGAAGA GGTGAATTAT TTATTAAATT
 CTTTATGGAT AAGTTACTTG CGCTTATCCT ATTATTGCTA TTATCCCCAG
 TAATCATTAT ATTAGCTATT TGGATAAAAT TAGATAGTAA GGGGCCAATT TTTTATCGCC
 AAGAACGTGT TACGAGATAT GGTGCAATTT TTAGAATATT TAAGTTTGA
 ACAATGATTT CTGATGCGGA TAAAGTCGGA AGTCTGTCA CAGTCGGTCA AGATAATCGT
 ATTACGAAAG TCGGTCACAT TATCAGAAA TATCGGCTGG ACGAAGTGCC
 CCAACTTTTT AATGTTTTAA TGGGGATAT GAGCTTTGTA GGTGTAAGAC CAGAAGTACA
 AAAATATGTA AATCAGTATA CTGATGAAAT GTTTCGACG TTAATTTTTAC
 CTGCAGGAAT TACTTCACCA GCGAGTATTG CATATAAGGA TGAAGATATT GTTTTAGAAG
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 TTACCAGAAA AAATGAAGTA CAATTTGGAA TATATCAGAA ACTTTGGAAT TATTTCTGAT
 TTTAAAGTAA TGATTGATAC AGTAATTAA GTAATAAAT AGGAGATTAA
 AATGACAAA AGACAAAATA TTCCATTTTC ACCACCAGAT ATTACCCAAG CTGAAATTGA
 TGAAGTTATT GACACACTAA AATCTGGTTG GATTACAACA GGACCAAAGA
 CAAAAGAGCT AGAAGCTCGG CTATCAGTAT TTACAGGAAC CAATAAACT GTGTGTTTAA
 ATTCTGCTAC TGCAGGATTG GAACTAGTCT TACGAATTCT TGGTGTTGGA
 CCCGGAGATG AAGTTATTGT TCCTGCTATG ACCTATACTG CCTCATGTAG TGTCAATTACT
 CATGTAGGAG CAACTCCTGT GATGGTTGAT ATTCAAAAA ACAGCTTTGA
 GATGGAATAT GATGCTTTGG AAAAAGCGAT TACTCCGAAA ACAAAGTTA TCATTCTCTG
 TGATCTAGCT GGTATTCTTT GTGATTATGA TAAGATTAT ACCATCGTAG
 AAAACAAAG CTCTTTGTAT GTTGCTTCTG ATAATAAAT GCAGAACTT TTTGGGCGAG
 TTATTATCCT ATCTGATAGT GCACACTCAC TAGGTGCTAG TTATAAGGGA
 AAACCAGCGG GTTCCCTAGC AGATTTTACC TCATTTCTT TCCATGCAGT TAAGAATTTT
 ACAACTGCTG AAGGAGGTAG TGTGACATGG AGATCACATC CTGATTTGGA
 TGACGAAGAG ATGTATAAAG AGTTTCAGAT TTAATCTCTT CATGGTCAGA CAAAGGATGC
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 GTTACAAGTG TAATATGACA GATATTATGG CAGGTATCGG TCTTGTGCAA TTAGAAGCTT
 ACCCATCTTT GTTGAATCGT CGCAGAGAAA TCATTGAGAA ATACAATGCT
 GGCTTTGAGG GGAATTCGAT TAAGCCGTTG GTACACCTGA CGGAAGATA ACAATCGTCT
 ATGCATTGTT ATATCAGCCA TCTACAAGGC TATACTTTAG AACAACGAAA
 TGAAGTCATT CAAAAAATGG CTGAAGCAGG TATTGCGTGC AATGTTCACT ACAAACCAT
 ACCTCTTCTC ACAGCCTACA AGAATCTTGG TTTTGAAATG AAAGATTTTC
 CGAATGCCTA TCAGTATTTT GAAATGAAG TTACACTGCC TCTTCATACC AACTTGAGTG
 ATGAAGATGT GGAGTATGTG ATAGAAATGT TTTTAAAAAT TGTTAGTAGA
 GATTAGTTAT TTTGGAAGGA GATATGGTGG AAAGAGATAT GGTGGAAAGA GACACGTTGG
 TATCTATAAT AATGCCCTCG TGGAAATACAG CTAAGTATAT ATCTGAATCA
 ATCCAGTCAG TGTGGACCA AACACACCAA AATTGGGAAC TTATAATCGT TGATGATTGT
 TCTAATGACG AAATGAAA AGTTGTTTCG CATTTCAAAG ATTCAAGAAT

DNA Serotype 7

Fig. 6

AAHKHVPLME YNPHEAVKNN IFGTKNVAEA AKTAKVAKFV MVSTDKAVNP PNVMGATKRV
AEMIVTGLNE PGQTQFAAVR FGNVLGSRGS VVPLFKEQIR KGGPVTVTDF
RMTRYFMTIP EASRLVIQAG HLAGKGEIFV LDMGEPVQIL ELARKVILLS GHTEEEIGIV
ESGIRPGEKL YEELLSTEER VSEQIHEKIF VGRVTNKQSD IVNSFINGLL
QKDRNELKDM LIEFAKQE

CPS7E

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MTRVELITRE FFKKNEATSK YFQKIESRRG ELFIKFFMDK LLALILLLLL SPVITILAIW
IKLDSKGPFI YRQERVTRYG RIFRIFKFR T MISDADKVGS LVTVGQDNRI
TKVGHIIRKY RLDEVPQLFN VLMGDSFVG VRPEVQKYVN QYTDENFATL LLPAGITSPA
SIAYKDEDIV LEEYCSQGY S PDEAYVQKVL PEKMKYNLEY IRNFGIISDF
KVMIDTVIKV IK

```

Fig. 6 cont.

CPS7F

[illegible]

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MTKRQNIFFS PPDITQAEID EVIDTLKSGW ITTGPKTKEL ERRLSVFTGT NKTVCCLNSAT
AGLELVLRIL GVGPGEDEV PAMTYTASCS VITHVGATPV MVDIQKNSFE
MEYDALEKAI TPCTKVIIIV DLAGIPCDYD KIYTIVENKR SLYVASDNKW QKLFGRVILL
SDSAHSLGAS YKCKPAGSLA DFTSFSFHAV KNFTTAEGGS VTWRSHPDLD
DEEMYKEFQI YSLHGQTKDA LAKTQLGSWE YDIVIPGYKC NMTDIMAGIG LVQLERYPSL
LNRRREIEEK YNAGFEGTSI KPLVHLTEDK QSSMHLYITH LQGYTLEQRN
EVIQKMAEAG IACNVHYKPL PLLTAYKNLG FEMKDFPNAY QYFENEVTLP LHTNLSDEDV
EYVIEMFLKI VSRD

Fig. 6 cont.

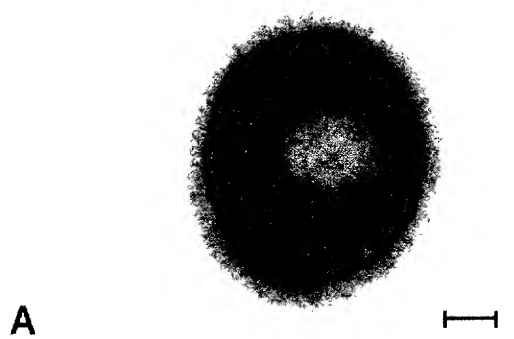
CPS7G

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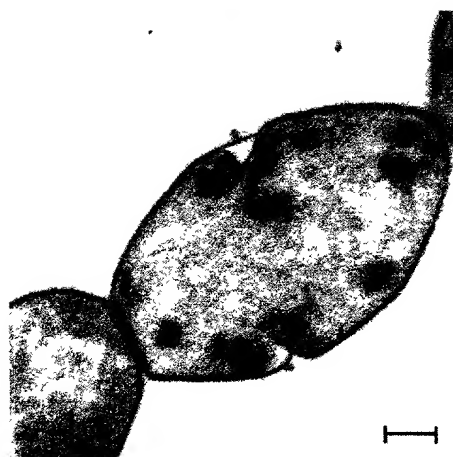
MVERDMVERD TLVSIIMPSW NTAKYISESI QSVLDQTHQN WELIIVDDCS NDETEKVVSH
FKDSRIKFFK NSNNLGAALT RNKALRKARG RWIAFLDSDD LWHPSKLEKQ
LEFMKNNGYS FTYHNFEEKID ESSQSLRVLV SGPAIVTRKM MYNYGYPGCL TFMYDADKMG
LIQIKDIKKN NDYAILLQLC KKYDCYLLNE SLASYRIRK

Fig. 6 cont.

CPS7H



A



B



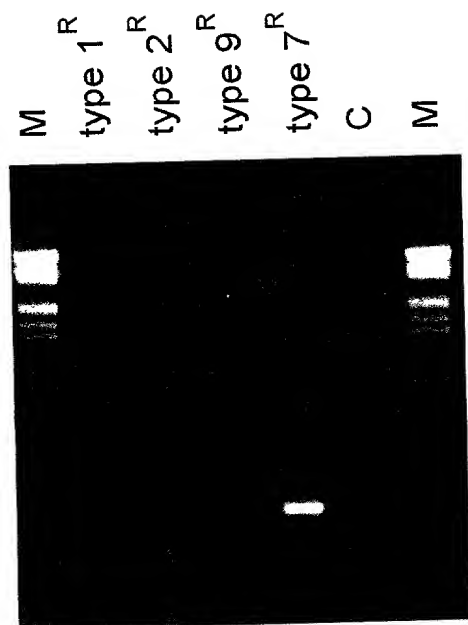
C

Fig. 8

[illegible]

Fig. 10

A



B

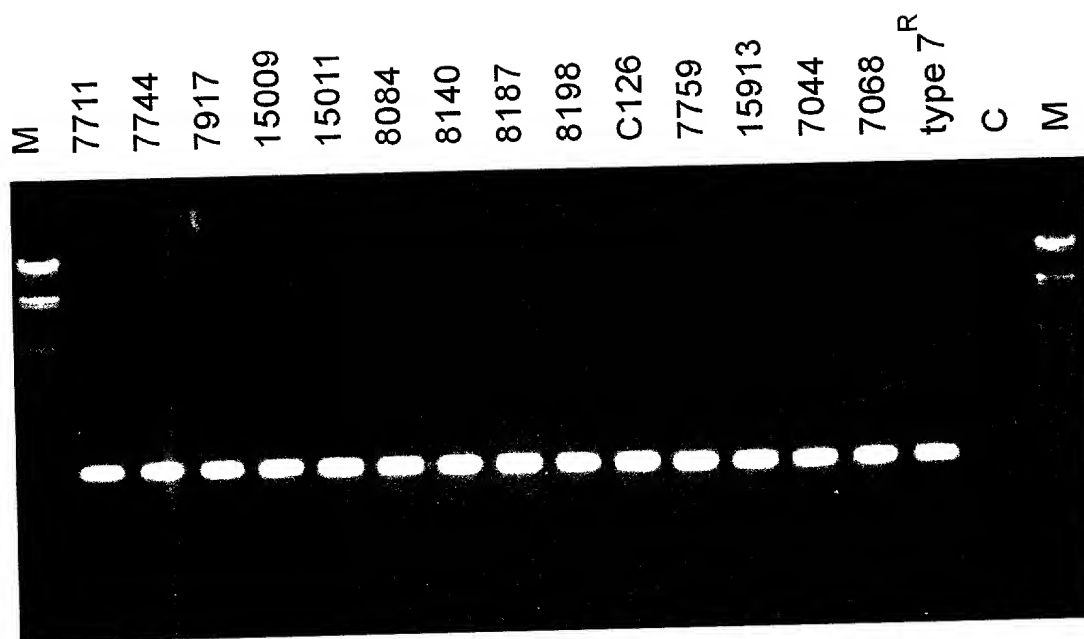


Fig. 12